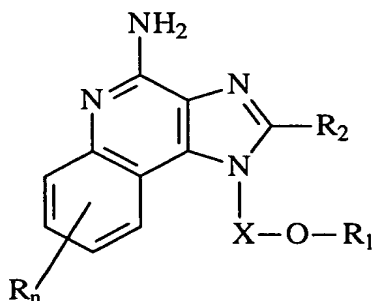


WHAT IS CLAIMED IS:

1. A compound of the formula (I):



(I)

wherein: **X** is  $-\text{CHR}_5-$ ,  $-\text{CHR}_5\text{-alkyl-}$ , or  $-\text{CHR}_5\text{-alkenyl-}$ ;

**R<sub>1</sub>** is selected from the group consisting of:

- $-\text{R}_4-\text{CR}_3-\text{Z}-\text{R}_6\text{-alkyl-}$ ;
- $-\text{R}_4-\text{CR}_3-\text{Z}-\text{R}_6\text{-alkenyl-}$ ;
- $-\text{R}_4-\text{CR}_3-\text{Z}-\text{R}_6\text{-aryl-}$ ;
- $-\text{R}_4-\text{CR}_3-\text{Z}-\text{R}_6\text{-heteroaryl-}$ ;
- $-\text{R}_4-\text{CR}_3-\text{Z}-\text{R}_6\text{-heterocyclyl-}$ ;
- $-\text{R}_4-\text{CR}_3-\text{Z}-\text{H-}$ ;
- $-\text{R}_4-\text{NR}_7-\text{CR}_3-\text{R}_6\text{-alkyl-}$ ;
- $-\text{R}_4-\text{NR}_7-\text{CR}_3-\text{R}_6\text{-alkenyl-}$ ;
- $-\text{R}_4-\text{NR}_7-\text{CR}_3-\text{R}_6\text{-aryl-}$ ;
- $-\text{R}_4-\text{NR}_7-\text{CR}_3-\text{R}_6\text{-heteroaryl-}$ ;
- $-\text{R}_4-\text{NR}_7-\text{CR}_3-\text{R}_6\text{-heterocyclyl-}$ ; and
- $-\text{R}_4-\text{NR}_7-\text{CR}_3-\text{R}_8\text{-}$ ;

**Z** is  $-\text{NR}_5-$ ,  $-\text{O-}$ , or  $-\text{S-}$ ;

**R<sub>2</sub>** is selected from the group consisting of:

- hydrogen;
- alkyl;
- alkenyl;

-aryl;  
 -heteroaryl;  
 -heterocyclyl;  
 -alkyl-Y-alkyl;  
 5        -alkyl-Y- alkenyl;  
          -alkyl-Y-aryl; and  
          - alkyl or alkenyl substituted by one or more substituents selected  
          from the group consisting of:  
              -OH;  
 10           -halogen;  
              -N(R<sub>5</sub>)<sub>2</sub>;  
              -CO-N(R<sub>5</sub>)<sub>2</sub>;  
              -CO-C<sub>1-10</sub> alkyl;  
              -CO-O-C<sub>1-10</sub> alkyl;  
 15           -N<sub>3</sub>;  
              -aryl;  
              -heteroaryl;  
              -heterocyclyl;  
              -CO-aryl; and  
 20           -CO-heteroaryl;  
  
       **R<sub>3</sub>** is =O or =S;  
       **R<sub>4</sub>** is alkyl or alkenyl, which may be interrupted by one or more –O–  
       groups;  
       each **R<sub>5</sub>** is independently H or C<sub>1-10</sub> alkyl;  
 25        **R<sub>6</sub>** is a bond, alkyl, or alkenyl, which may be interrupted by one or more  
       –O– groups;  
       **R<sub>7</sub>** is H, C<sub>1-10</sub> alkyl, or arylalkyl; or **R<sub>4</sub>** and **R<sub>7</sub>** can join together to form a  
       ring;  
       **R<sub>8</sub>** is H or C<sub>1-10</sub> alkyl; or **R<sub>7</sub>** and **R<sub>8</sub>** can join together to form a ring;  
 30        **Y** is –O– or –S(O)<sub>0-2</sub>–;  
       **n** is 0 to 4; and

each **R** present is independently selected from the group consisting of C<sub>1-10</sub> alkyl, C<sub>1-10</sub> alkoxy, hydroxy, halogen and trifluoromethyl; or a pharmaceutically acceptable salt thereof.

5        2.        A compound or salt of claim 1 wherein the heteroaryl is selected from the group consisting of 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-thiazolyl, and 4-pyrazolyl.

3.        A compound or salt of claim 1 wherein X is -CH(alkyl)-alkyl- wherein the alkyl groups can be the same or different.

10

4.        A compound or salt of claim 1 wherein X is -CH<sub>2</sub>-CH<sub>2</sub>-.

5.        A compound or salt of claim 1 wherein X is -CH(C<sub>2</sub>H<sub>5</sub>)-CH<sub>2</sub>-.

15

6.        A compound or salt of claim 1 wherein R<sub>2</sub> is H.

7.        A compound or salt of claim 1 wherein R<sub>2</sub> is alkyl.

8.        A compound or salt of claim 1 wherein R<sub>2</sub> is -alkyl-O-alkyl.

20

9.        A compound or salt of claim 1 wherein n is o.

10.       A compound selected from the group consisting of:

25

N-{2-[2-(4-amino-2-methyl-1H-imidazo[4, 5-c]quinolin-1-yl)thoxy]ethyl}benzamide;

-70, p.70

N-{2-[2-(4-amino-2-ethyl-1H-imidazo[4, 5-c]quinolin-1-yl)thoxy]ethyl}benzamide;

-71 p.71

N-(2-{2-[4-amino-2-(2-methoxyethyl)-1H-imidazo[4, 5-c]quinolin-1-yl]ethoxy}ethyl)-N-methylcyclohexanecarboxamide; and

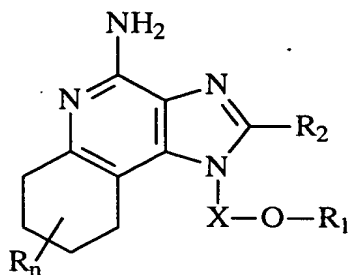
-73 p.73

30

N-(2-{2-[4-amino-2-(2-methoxyethyl)-1H-imidazo[4,5-c]quinolin-1-yl]ethoxy}ethyl)-N-methylcyclohexanecarboxamide,

or a pharmaceutically acceptable salt thereof.

11. A compound of the formula (II)



(II)

5

wherein: **X** is  $-\text{CHR}_5-$ ,  $-\text{CHR}_5\text{-alkyl-}$ , or  $-\text{CHR}_5\text{-alkenyl-}$ ;

**R<sub>1</sub>** is selected from the group consisting of:

$-\text{R}_4\text{-CR}_3\text{-Z-R}_6\text{-alkyl}$ ;

$-\text{R}_4\text{-CR}_3\text{-Z-R}_6\text{-alkenyl}$ ;

10

$-\text{R}_4\text{-CR}_3\text{-Z-R}_6\text{-aryl}$ ;

$-\text{R}_4\text{-CR}_3\text{-Z-R}_6\text{-heteroaryl}$ ;

$-\text{R}_4\text{-CR}_3\text{-Z-R}_6\text{-heterocyclyl}$ ;

$-\text{R}_4\text{-CR}_3\text{-Z-H}$ ;

$-\text{R}_4\text{-NR}_7\text{-CR}_3\text{-R}_6\text{-alkyl}$ ;

15

$-\text{R}_4\text{-NR}_7\text{-CR}_3\text{-R}_6\text{-alkenyl}$ ;

$-\text{R}_4\text{-NR}_7\text{-CR}_3\text{-R}_6\text{-aryl}$ ;

$-\text{R}_4\text{-NR}_7\text{-CR}_3\text{-R}_6\text{-heteroaryl}$ ;

$-\text{R}_4\text{-NR}_7\text{-CR}_3\text{-R}_6\text{-heterocyclyl}$ ; and

$-\text{R}_4\text{-NR}_7\text{-CR}_3\text{-R}_8$ ;

20

**Z** is  $-\text{NR}_5-$ ,  $-\text{O-}$ , or  $-\text{S-}$ ;

**R<sub>2</sub>** is selected from the group consisting of:

-hydrogen;

-alkyl;

-alkenyl;

25

-aryl;

-heteroaryl;

-heterocyclyl;

-alkyl-Y-alkyl;  
-alkyl-Y-alkenyl;  
-alkyl-Y-aryl; and  
-alkyl or alkenyl substituted by one or more substituents selected  
from the group consisting of:

-OH;  
-halogen;  
-N(R<sub>5</sub>)<sub>2</sub>;  
-CO-N(R<sub>5</sub>)<sub>2</sub>;  
-CO-C<sub>1-10</sub> alkyl;  
-CO-O-C<sub>1-10</sub> alkyl;  
-N<sub>3</sub>;  
-aryl;  
-heteroaryl;  
-heterocyclyl;  
-CO-aryl; and  
-CO-heteroaryl;

**R<sub>3</sub>** is =O or =S;

**R<sub>4</sub>** is alkyl or alkenyl, which may be interrupted by one or more -O-  
groups;

each **R<sub>5</sub>** is independently H or C<sub>1-10</sub> alkyl;

**R<sub>6</sub>** is a bond, alkyl, or alkenyl, which may be interrupted by one or more  
-O- groups;

**R<sub>7</sub>** is H, C<sub>1-10</sub> alkyl, arylalkyl; or **R<sub>4</sub>** and **R<sub>7</sub>** can join together to form a ring;

**R<sub>8</sub>** is H or C<sub>1-10</sub> alkyl; or **R<sub>7</sub>** and **R<sub>8</sub>** can join together to form a ring;

**Y** is -O- or -S(O)<sub>0-2</sub>;

**n** is 0 to 4; and

each **R** present is independently selected from the group consisting of C<sub>1-10</sub>  
alkyl, C<sub>1-10</sub> alkoxy, hydroxy, halogen, and trifluoromethyl;  
or a pharmaceutically acceptable salt thereof.

12. A compound or salt of claim 11 wherein **R<sub>2</sub>** is H or alkyl.

13. A compound or salt of claim 11 wherein R<sub>2</sub> is -alkyl-O-alkyl.

14. A pharmaceutical composition comprising a therapeutically effective amount of a compound or salt of claim 1 and a pharmaceutically acceptable carrier.

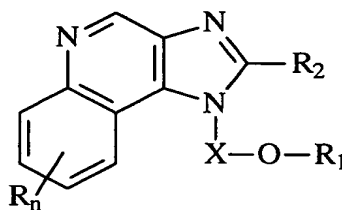
15. A method of inducing cytokine biosynthesis in an animal comprising administering a therapeutically effective amount of a compound or salt of claim 1 to the animal.

16. The method of claim 15 wherein the cytokine is IFN- $\alpha$ .

17. A method of treating a viral disease in an animal comprising administering a therapeutically effective amount of a compound or salt of claim 1 to the animal.

18. A method of treating a neoplastic disease in an animal comprising administering a therapeutically effective amount of a compound or salt of claim 1 to the animal.

19. A compound of the formula (III):



(III)

wherein: X is -CHR<sub>5</sub>-, -CHR<sub>5</sub>-alkyl-, or -CHR<sub>5</sub>-alkenyl-;

R<sub>1</sub> is selected from the group consisting of:

-R<sub>4</sub>-CR<sub>3</sub>-Z-R<sub>6</sub>-alkyl;

-R<sub>4</sub>-CR<sub>3</sub>-Z-R<sub>6</sub>-alkenyl;

-R<sub>4</sub>-CR<sub>3</sub>-Z-R<sub>6</sub>-aryl;

-R<sub>4</sub>-CR<sub>3</sub>-Z-R<sub>6</sub>-heteroaryl;

-R<sub>4</sub>-CR<sub>3</sub>-Z-R<sub>6</sub>-heterocyclyl;

$-R_4-CR_3-Z-H$ ;  
 $-R_4-NR_7-CR_3-R_6-alkyl$ ;  
 $-R_4-NR_7-CR_3-R_6-alkenyl$ ;  
 $-R_4-NR_7-CR_3-R_6-aryl$ ;  
 $-R_4-NR_7-CR_3-R_6-heteroaryl$ ;  
 $-R_4-NR_7-CR_3-R_6-heterocyclyl$ ; and  
 $-R_4-NR_7-CR_3-R_8$ ;

**Z** is  $-NR_5-$ ,  $-O-$ , or  $-S-$ ;

**R<sub>2</sub>** is selected from the group consisting of:

$-hydrogen$ ;  
 $-alkyl$ ;  
 $-alkenyl$ ;  
 $-aryl$ ;  
 $-heteroaryl$ ;  
 $-heterocyclyl$ ;  
 $-alkyl-Y-alkyl$ ;  
 $-alkyl-Y-alkenyl$ ;  
 $-alkyl-Y-aryl$ ; and  
 $-alkyl$  or  $alkenyl$  substituted by one or more substituents selected from the group consisting of:

$-OH$ ;  
 $-halogen$ ;  
 $-N(R_5)_2$ ;  
 $-CO-N(R_5)_2$ ;  
 $-CO-C_{1-10} alkyl$ ;  
 $-CO-O-C_{1-10} alkyl$ ;  
 $-N_3$ ;  
 $-aryl$ ;  
 $-heteroaryl$ ;  
 $-heterocyclyl$ ;  
 $-CO-aryl$ ; and  
 $-CO-heteroaryl$ ;

$R_3$  is =O or =S;

$R_4$  is alkyl or alkenyl, which may be interrupted by one or more -O- groups;

each  $R_5$  is independently H or  $C_{1-10}$  alkyl;

5  $R_6$  is a bond, or is alkyl, or alkenyl, which may be interrupted by one or more -O- groups;

$R_7$  is H,  $C_{1-10}$  alkyl, or arylalkyl; or  $R_4$  and  $R_7$  can join to form a ring;

$R_8$  is H or  $C_{1-10}$  alkyl; or  $R_7$  and  $R_8$  can join to form a

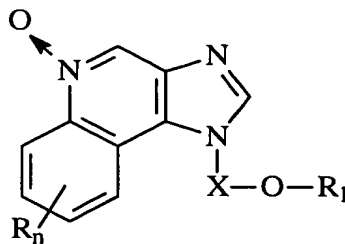
$Y$  is -O- or -S(O)<sub>0-2</sub>;

10  $n$  is 0 to 4; and

each  $R$  present is independently selected from the group consisting of  $C_{1-10}$  alkyl,  $C_{1-10}$  alkoxy, hydroxy, halogen and trifluoromethyl;

or a pharmaceutically acceptable salt thereof.

15 20. A compound of the formula (IV):



(IV)

wherein  $X$  is -CHR<sub>5</sub>-, -CHR<sub>5</sub>-alkyl-, or -CHR<sub>5</sub>-alkenyl-;

20  $R_1$  is selected from the group consisting of:

-R<sub>4</sub>-CR<sub>3</sub>-Q-R<sub>6</sub>-alkyl;

-R<sub>4</sub>-CR<sub>3</sub>-Q-R<sub>6</sub>-alkenyl;

-R<sub>4</sub>-CR<sub>3</sub>-Q-R<sub>6</sub>-aryl;

-R<sub>4</sub>-CR<sub>3</sub>-Q-R<sub>6</sub>-heteroaryl;

25 -R<sub>4</sub>-CR<sub>3</sub>-Q-R<sub>6</sub>-heterocyclyl;

-R<sub>4</sub>-CR<sub>3</sub>-Q-H;

-R<sub>4</sub>-NR<sub>5</sub>-CR<sub>3</sub>-R<sub>6</sub>-alkyl;

-R<sub>4</sub>-NR<sub>5</sub>-CR<sub>3</sub>-R<sub>6</sub>-alkenyl;

-R<sub>4</sub>-NR<sub>7</sub>-CR<sub>3</sub>-R<sub>6</sub>-aryl;  
-R<sub>4</sub>-NR<sub>7</sub>-CR<sub>3</sub>-R<sub>6</sub>-heteroaryl;  
-R<sub>4</sub>-NR<sub>7</sub>-CR<sub>3</sub>-R<sub>6</sub>-heterocyclyl; and  
-R<sub>4</sub>-NR<sub>7</sub>-CR<sub>3</sub>-R<sub>8</sub>;

5

**Q** is -NR<sub>5</sub>- or -O-;

**R<sub>3</sub>** is =O or =S;

**R<sub>4</sub>** is alkyl or alkenyl, which may be interrupted by one or more -O- groups;

each **R<sub>5</sub>** is independently H or C<sub>1-10</sub> alkyl;

10

**R<sub>6</sub>** is a bond, alkyl, or alkenyl, which may be interrupted by one or more -O- groups;

**R<sub>7</sub>** is H, C<sub>1-10</sub> alkyl, or arylalkyl; or R<sub>4</sub> and R<sub>7</sub> can join to form a ring;

**R<sub>8</sub>** is H or C<sub>1-10</sub> alkyl; or R<sub>7</sub> and R<sub>8</sub> can join to form a ring;

**n** is 0 to 4; and

15

each **R** present is independently selected from the group consisting of C<sub>1-10</sub> alkyl, C<sub>1-10</sub> alkoxy, halogen and trifluoromethyl; or a pharmaceutically acceptable salt thereof.

20

21. A pharmaceutical composition comprising a therapeutically effective amount of a compound or salt of claim 11 and a pharmaceutically acceptable carrier.

22. A method of inducing cytokine biosynthesis in an animal comprising administering a therapeutically effective amount of a compound or salt of claim 11 to the animal.

25

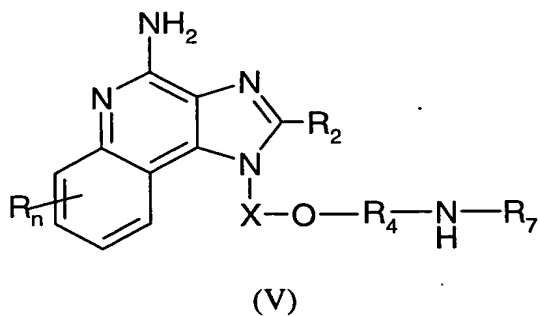
23. The method of claim 22 wherein the cytokine is IFN- $\alpha$ .

24. A method of treating a viral disease in an animal comprising administering a therapeutically effective amount of a compound or salt of claim 11 to the animal.

30

25. A method of treating a neoplastic disease in an animal comprising administering a therapeutically effective amount of a compound or salt of claim 11 to the animal.

26. A compound of the formula (V):



wherein: **X** is  $-\text{CHR}_5-$ ,  $-\text{CHR}_5\text{-alkyl-}$ , or  $-\text{CHR}_5\text{-alkenyl-}$ ;

**R<sub>2</sub>** is selected from the group consisting of:

-hydrogen;

-alkyl;

-alkenyl;

-aryl;

-heteroaryl;

-heterocyclyl;

-alkyl-Y-alkyl;

-alkyl-Y-alkenyl;

-alkyl-Y-aryl; and

-alkyl or alkenyl substituted by one or more substituents selected from the group consisting of:

-OH;

-halogen;

$-\text{N}(\text{R}_5)_2$ ;

$-\text{CO}-\text{N}(\text{R}_5)_2$ ;

$-\text{CO}-\text{C}_{1-10}$  alkyl;

$-\text{CO}-\text{O}-\text{C}_{1-10}$  alkyl;

$-\text{N}_3$ ;

-aryl;

-heteroaryl;

-heterocyclyl;

-CO-aryl; and  
-CO-heteroaryl;

**R**<sub>4</sub> is alkyl or alkenyl, which may be interrupted by one or more -O-  
groups;

5 each **R**<sub>5</sub> is independently H or C<sub>1-10</sub> alkyl;

**R**<sub>7</sub> is H, C<sub>1-10</sub> alkyl, or arylalkyl; or **R**<sub>4</sub> and **R**<sub>7</sub> can join to form a ring;

**Y** is -O- or -S(O)<sub>0-2</sub>-;

**n** is 0 to 4; and

10 each **R** present is independently selected from the group consisting of C<sub>1-10</sub>  
alkyl, C<sub>1-10</sub> alkoxy, hydroxy, halogen and trifluoromethyl;  
or a pharmaceutically acceptable salt thereof.

27. A compound selected from the group consisting of :

1-[2-(2-aminoethoxy)ethyl]-2-methyl-1H-imidazo [4, 5-*c*]quinolin-4-amine;

15 1-[2-(2-aminoethoxy)ethyl]-2-ethyl-1H-imidazo [4, 5-*c*]quinolin-4-amine;

1-[2-(2-aminoethoxy)ethyl]-2-ethoxymethyl-1H-imidazo [4, 5-*c*]quinolin-4-amine;

and pharmaceutically acceptable salts thereof.

20